

REMARKS

Claims 1-19 are presently pending in the application.

Entry of the above amendments after final is proper, because the amendments raise no new issues, insert no new matter or extra claims, and at least place the application in better form for appeal, if not placing the application in condition for allowance. Thus, the above amendments respond to the Examiner's objection to the specification under 35 U.S.C. § 132, the objection to the specification as incorporating essential material by reference, and the rejection of claims 14 and 17-19 under 35 U.S.C. § 112, first paragraph, as set forth at pages 2-4 of the Office Action, and as discussed below. Accordingly, entry of the amendments is respectfully requested.

At the top of page 2 of the Office Action, the Examiner has objected to the specification under 35 U.S.C. § 132 on the ground that the Amendment received by the Patent Office December 1, 2004 introduced new matter to the disclosure. Also, at the middle of page 2 of the Office Action, the Examiner rejects claims 14 and 17-19 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. In support of this objection and rejection, the Examiner contends that the specification does not appear to support an evacuated panel containing polymeric material which "further contains a getter material" (claim 14) or the term "foam" in the phrase "polymeric foam" recited in claims 17-19.

With respect to the phrase "further contains a getter material" in claim 14, this is clearly supported in paragraph [0024], particularly at page 5, lines 9-11 (as pointed out in the previous Amendment), which describes a polymer-filled panel also containing a getter material or device. Hence, contrary to the Examiner's contention, the specification clearly supports the combination of an evacuated panel containing polymeric material and further containing a getter material.

With respect to claims 17-19, polymeric filling materials including polymeric foams are disclosed, for example, in paragraph [0007] in the Background section of the specification. However, to obviate the objection and rejection and advance the prosecution of the application, claims 17-19 have been amended to delete the term "foam" and instead to refer to the polymeric filling material as being "porous," which is supported, for example, in paragraph [0015] at page 3, line 20 and in paragraph [0024], particularly at page 5, line 2.

Claim 17 has also been amended to correct a typographical error in line 4, which corresponds to line 4 of claim 1. Accordingly, no new matter has been added by these amendments. Entry of the amendments and reconsideration and withdrawal of the objection under § 132 and the rejection under § 112 are respectfully solicited.

In the paragraph bridging pages 2 and 3 of the Office Action, the Examiner has again objected to the specification as improperly incorporating essential material in the specification by reference to a foreign application or patent. Applicants again respectfully disagree, since the prior PCT (International) application designating the United States is in fact a U.S. application from which priority is claimed under 35 U.S.C. § 120. However, rather than further contest the matter, and in order to advance the prosecution of the application, the incorporation by reference has been cancelled from paragraph [0002] of the specification. Accordingly, the objection is moot, and reconsideration and withdrawal are respectfully requested.

The Examiner has again rejected claims 1, 11 and 12 and new claim 14 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 6,110,310 of Eyhorn. The Examiner contends that Eyhorn discloses a heat insulation system for tubular bodies comprising at least two superimposed, evacuated panels with staggered joints, such as used on a pipe, where the panels are rolled around the pipe to insulate it. The Examiner further contends that organic and inorganic materials are used to form the insulating material within the evacuated panels, there being at least two panels which consist of both inorganic and organic materials up to 50%. The Examiner argues that these two panels containing both inorganic and organic material read on the present claims, since there is one panel with inorganic material and one panel with organic material, and the term “consisting essentially of” in the claims is interpreted as “comprising” where Applicant’s layers also contain various other additives (citing MPEP § 2111.03). The Examiner also argues that the material filling the evacuated panels is inherently a getter material which is mixed with a polymeric material. This rejection is respectfully but strenuously traversed for the reasons set forth in detail below.

Applicants respectfully disagree with the Examiner’s interpretation of the phrase “consisting essentially of” as used in the present claims. MPEP § 2111.03, cited by the Examiner, defines the transitional phrase “consisting essentially of” as limiting the scope of a claim to the specified materials or steps “and those that do not materially affect the basic and

novel characteristic(s)” of the claimed invention. Applicants recognize that the burden is on Applicants to make clear in the specification what is regarded as constituting a material change in the basic and novel characteristics of the invention. It is submitted that one skilled in the art would readily understand from the present specification what is meant by the use of the term “consisting essentially of” in the present claims and what is intended to be excluded.

First, the Abstract of the Disclosure states that the heat insulating system includes at least two superimposed evacuated panels with at least one of the panels being formed essentially by an evacuated envelope which contains a polymeric filling material inside thereof and at least one other panel being formed essentially by an evacuated envelope having an inorganic filler material inside thereof. Thus, the Abstract conveys the concept that the heat insulating system of the present invention comprises at least two different panels, one panel consisting essentially of an evacuated panel containing polymeric filling material and at least one other panel consisting of an evacuated panel containing inorganic filling material.

That is, at least one panel contains essentially polymeric filling material and excludes inorganic filling material, while the at least one other panel consists essentially of inorganic filling material and excludes polymeric filling material. If this were not the case, i.e., if each of the two panels could contain both a polymeric filling material and an organic filling material in any amount, the two panels could be essentially the same, as assumed by the Examiner. However, that would render meaningless the description and claims of the present invention, because in that case, there would be no reason to describe these two panels separately. Instead, the description and claims would simply refer to at least two panels containing polymeric filling material and inorganic filling material. That is clearly not the invention which is being described and claimed, as would be readily recognized by one skilled in the art.

In the Detailed Description of the Invention section of the specification at pages 4-6 of the application, the evacuated panels containing polymeric filling material are described in [0024], and the evacuated panels containing inorganic filling material are described in paragraphs [0025] through [0030]. Paragraph [0023], which introduces paragraphs [0024] through [0030], states that the insulating system comprises at least two evacuated panels, at least one comprising as a filling material a polymeric material, whereas at least another panel uses an inorganic filling material. This paragraph clearly conveys the idea that there are two different

types of panels, the words “whereas” and “another” conveying the idea that the second mentioned panel (“at least another panel”) is being contrasted to the first (“at least one”) panel, and that the contrasting feature is the polymeric filling material in the first panel and the inorganic filling material in the second panel.

With respect to the at least one evacuated panel containing polymeric filling material, paragraph [0024] describes only polymeric filling materials and the possibility of including a conventional additive of a getter material or device. There is no description or suggestion of this panel as containing an inorganic material, other than the optional getter material additive. This panel is further referred to as the “polymer-filled panel,” conveying the idea that the panel envelope is filled with the polymeric material. Therefore, it is clear from the description that the polymer-filled panel consists essentially of the envelope and the polymeric filling material, with the possible addition of a getter material to remove trace gases.

Similarly, with respect to the at least one evacuate panel containing inorganic filling material, the description at paragraphs [0025] through [0030] includes only various types of inorganic fillers, such as glass fibers, powders of inert materials and inorganic additives, such as opacifiers to reduce radiant heat transport in the panel. There is no description or suggestion in paragraphs [0025] through [0030] that the inorganic-filled panel includes any organic material, and particularly no polymeric filling material is mentioned. Therefore, one skilled in the art would readily understand that the inorganic-filled panel is intended to consist essentially of inorganic filling material.

Hence, one skilled in the art will readily understand from reading the present specification that the present invention is based on the concept of using at least two different panels for the heat insulating system, namely a polymer-filled panel in which the filling material consists essentially of a polymeric material and an inorganic-filled panel in which the filling material consists essentially of an inorganic material. What is to be essentially excluded from each of these different types of panels is the filling material of the at least one other panel which is contrasted therefrom, namely inorganic filling material in the case of the polymer-filled panel and polymeric filling material in the case of the inorganic filled panel. This is further evident from the problems and disadvantages of prior art panels described in the Background and Detailed Description sections of the application.

For example, with respect to the Eyhorn patent (U.S. Patent 6,110,310), described in paragraph [0013] of the application, Applicants note that one problem of inorganic filler materials is that they are rather heavy. In paragraph [0031], Applicants note that panels with inorganic filling withstand high temperatures better than ones comprising polymeric filling materials, and can thus be used for protection of the polymer-filled panels by placing them in the inner space of tubular bodies in contact with the hotter tubes. Further, in paragraph [0029], Applicants state that compared with polymer-filled panels, those based on inorganic materials undergo fewer changes in thermal insulating characteristics in case of cracks. Finally, in paragraph [0034], Applicants conclude that the system of the invention has the advantage that it obtains very good thermal insulation properties, but with an overall lower weight and lower costs compared with systems using only panels containing microporous inorganic materials, thus conveying the information that inorganic filling materials are also more expensive than polymeric filling materials.

Therefore, from the above-described teachings of the present application, one skilled in the art will readily understand that the polymer-filled panels are intended to essentially exclude inorganic materials, because inorganic filling materials are heavy and expensive. On the other hand, one skilled in the art will readily understand that the panels with a filling material consisting essentially of inorganic materials are intended to essentially exclude polymeric filling materials, because polymeric filling materials cannot withstand high temperatures and also undergo more changes in thermal insulating characteristics than inorganic filling materials in the case of cracks. That is, in order to achieve the advantages of the system of the present invention, namely obtaining very good thermal insulation properties, but with overall lower weight and lower costs (paragraph [0034]), the system of the invention must have at least one of each type of panel, namely an essentially inorganic material-filled panel which withstands higher temperatures and undergoes fewer changes in thermal insulating characteristics in the case of cracks, and an essentially polymer-filled panel which is lower in weight and costs compared with the inorganic-filled panel.

The Examiner's interpretation of Eyhorn as anticipating the present invention by having two panels of both inorganic and organic materials up to 50% distorts the intention and meaning of the present invention, because each of the thus interpreted panels of Eyhorn, containing up to 50% of each of organic and inorganic materials fails to meet the basic and novel characteristics

of the present invention. That is, each of the panels would have to some degree both the disadvantages of the higher cost and weight of the inorganic filling and the lower thermal resistance and insulating characteristics of the polymeric filling material. In other words, the up to 50% inorganic material in a panel of Eyhorn would materially affect the basic and novel characteristics of a polymer-filled panel, by increasing the cost and weight of the polymer-filled panel. Similarly, the inclusion of up to 50% polymeric material in a panel of Eyhorn containing inorganic material would materially affect the basic and novel characteristics of the inorganic-filled panel, by reducing the resistance to high temperatures and the stability of the thermal insulating characteristics.

While Eyhorn allows the possibility of panels filled with 100% inorganic materials, the only organic material used by Eyhorn is fibrous material (up to a maximum of 50% by weight), as mentioned at column 3, line 66 – column 4, line 1. Therefore, Eyhorn does not teach or suggest at least one panel containing a filling material consisting essentially of polymeric material. Moreover, Eyhorn does not in any way contrast its panel from one another, so that Eyhorn conveys no concept of using at least one panel with a different filling material from at least one other panel. Therefore, the rejection of the claims under 35 U.S.C. § 102 based on Eyhorn is improper and should be withdrawn.

The Examiner's argument at the top of page 5 of the Office Action that "inherently the material filling the evacuated panels is inherently a getter material which is mixed with a polymeric material" is not understood. The porous polymeric material is not inherently a getter material, because the porous polymeric filling material does not rid the panel of traces of gases that may penetrate into the panel over its working life. At best, the porous polymeric filling material would merely hold the trace gases in its pores, so that the gases would still be present and would still partially destroy the vacuum and hence partially deteriorate the insulating properties of the system. Therefore, to the extent that the Examiner's rejection is based upon this argument of inherency, the rejection is improper and should be withdrawn.

The Examiner has again rejected claims 1-13 and new claims 14 and 17-19 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,037,003 of Hunter in view of U.S. Patent 4,680,070 of Hughes for essentially the same reasons as in the previous Office Action. The Examiner adds at the end of the rejection (bottom of page 6 of the Office Action) that the

use of “consisting essentially of” without any suggestion from the specification of a material only consisting of one material is no more limiting than “comprising” which allows for other additives to be included in the layer. However, the Examiner does not add any comments or arguments with respect to claims 14 and 17-19, which were added in the previous Amendment. This rejection is again respectfully but strenuously traversed for the reasons set forth in the Amendment filed November 29, 2004, and the additional arguments set forth below.

With respect to the term “consisting essentially of” used in the present claims, Applicants’ arguments above with respect to Eyhorn, are equally applicable to the rejection of claims 1-14 over Hunter in view of Hughes, since neither Hunter nor Hughes discloses or suggests two or more panels, wherein at least one of the panels consists essentially of a polymeric filling material and at least another panel consists essentially of an inorganic filling material.

The Examiner’s comments regarding Hunter are unfounded, and the Examiner has not pointed to any portion of Hunter to support his arguments. For example, the Examiner states at the middle of page 5 of the Office Action that Hunter “discloses the recited heat insulating system ... comprising at least two superimposed evacuated panels” However, Applicants have been unable to find such a teaching or disclosure after a thorough review of Hunter. In fact, as pointed out in the previous response, Hunter discloses only single evacuated panels, not a system comprising two or more panels, as presently claimed. Similarly, the Examiner states that one of the superimposed panels allegedly disclosed by Hunter would comprise “polymeric filling material and another evacuated panel comprises inorganic filling material.” Again, after thoroughly reviewing Hunter, Applicants can find no basis for such a statement in the disclosure of Hunter.

The Examiner’s reliance on columns 8 and 12 of Hunter (bottom of page 8 of the Office Action) is misplaced. First of all, the “thermal insulation elements” of Hunter are not different panels, but rather different geometrically shaped materials within a single panel. See, for example, elements 26 and 28 inside envelope 10 of the panel shown in Fig. 5 of Hunter. Moreover, the “difference” in the thermal insulation elements of Hunter is not a difference in materials, but rather a difference in geometric shape, which permits stacking of the elements.

While column 12, lines 41-48 of Hunter discloses both polymeric and inorganic materials for the thermal insulation elements, there is no suggestion of using polymeric materials for one panel and inorganic materials for another panel in the same insulation system. As previously pointed out, Hughes does not in any way make up for these deficiencies of Hunter. Therefore, the rejection of the claims based on Hunter in view of Hughes is improper and should be withdrawn.

Finally, the Examiner has rejected claims 15 and 16 under 35 U.S.C. § 103(a) as being unpatentable over Hunter in view of Hughes, as applied to claims 1-14 and 17-19, and further in view of U.S. Patent 3,810,491 of Hildebrandt. The Examiner acknowledges that Hunter as modified by Hughes does not disclose disposing the insulation between two pipes or placing the panel containing inorganic material in contact with the hotter pipe. However, the Examiner again argues that Hunter suggests using two different materials for their properties (an argument which has already been disputed above), and that it is considered an obvious choice of mechanical expedients and a matter of routine experimentation for one skilled in the art to find placing the panel containing inorganic material against the hotter pipe, since this would prevent the organic material from failing when contacting a hotter surface and thereby save repair costs. The Examiner contends that Hildebrandt discloses providing multiple wound insulation panels in an evacuated space between an inner pipe 1 and an outer pipe 12 to better insulate the pipes. The Examiner concludes that it would have been obvious to one skilled in the art to modify the insulation of Hunter by providing an outer pipe to enclose the insulation suggested by Hildebrandt, since this would insulate the inner pipe better and would protect the insulation from damage. This rejection is respectfully, but strenuously traversed for the reasons set forth in detail below.

As discussed above, Hunter does not disclose, as contended by the Examiner, two superimposed panels, each containing a different filler material. Second, since the insulating material of Hildebrandt is helically wound, the filler material must be the same. Therefore, Hildebrandt does not make up for the deficiencies of Hunter with respect to the presently claimed different types of filling materials.

Further, Hildebrandt is directed to double-wall conduits for conducting liquefied gases and other low-temperature fluids for cryogenic purposes. Therefore, neither of the pipes of

Application No. 10/751,760

Reply to Office Action of February 25, 2005

Hildebrandt is a "hot" pipe which would damage a polymeric material by overheating.

Therefore, there is no reason, as contended by the Examiner, to place a panel containing inorganic filler material against the "hotter" of the two pipes of Hildebrandt. The rejection is therefore improper and should be withdrawn.

In view of the above Amendments it is submitted that objection under 35 U.S.C. § 132 and the rejection under 35 U.S.C. § 112 have been overcome, and in view of the above Remarks, it is submitted that all of the claims in the application patentably distinguish over the prior art of record. Reconsideration and an early Notice of Allowance are respectfully solicited.

Respectfully submitted,

September 19, 2005 By: Wm W. Schwarze
Date

WILLIAM W. SCHWARZE

Registration No. 25,918

AKIN GUMP STRAUSS HAUER & FELD LLP

One Commerce Square

2005 Market Street, Suite 2200

Philadelphia, PA 19103-7013

Telephone: 215-965-1200

Direct Dial: 215-965-1270

Facsimile: 215-965-1210

E-Mail: wschwarze@akingump.com

WWS/rc